

REMARKS

This is intended to be a full and complete response to the Office Action mailed July 26, 2006, having a shortened statutory period for response extended two months to expire on December 26, 2006. Claims 1-6, 8, 10-14, 19-24, and 27-33 are pending in this Application and are shown above. Claims 1-6, 8, 10-14, 19-24, and 27-33 have been rejected by the Examiner. Applicant add new claims 34-43 as shown below. Reconsideration of the rejected claims is requested for reasons presented below.

In the Office Action mailed July 26, 2006, the Examiner rejected claims 1-6, 8, 10-13, and 19-23 under 35 U.S.C. 112, first paragraph; rejected claims 1-6, 8, 10-13, and 19-23 under 35 U.S.C. 112, second paragraph; rejected Claims 1-6, 8, 10-14, 19-24, and 27-33 under 35 U.S.C. § 102(b) as being anticipated by *Goetz et al.* (U.S. Patent No. 4,983,550); rejected Claims 24 and 27-33 under 35 U.S.C. § 102(b) as being anticipated by *Jones et al.* (U.S. Patent No. 4,937,210); rejected Claims 24 and 27 under 35 U.S.C. § 102(b) as being anticipated by *Matthews et al.* (U.S. Patent No. 3,838,998); and rejected Claims 24 and 27 under 35 U.S.C. § 102(b) as being anticipated by *Torobin* (U.S. Patent No. 4,303,732). Applicants respectfully address the Examiner's rejections with this reply.

Claims Rejection - 35 U.S.C. § 112, first and second paragraphs

Claims 1-6, 8, 10-13, and 19-23 stand rejected under 35 U.S.C. 112, first paragraph. Applicant has amended claim 1 to more clearly recite the invention. Support for the percentage ranges for calcium oxide can be found at paragraphs [0027] and

[0055], and the amount of calcium oxide of 5.2 wt.% can be found in Example 8, paragraph [0153] and Table 13. (All paragraphs are referenced to the publication of the present application as United States Publication No. 2004/0081827) Further, paragraph [0055] discloses microspheres having characteristics including up to about 30% divalent metal oxides including calcium oxide (CaO). The specification discloses that divalent metal oxides may comprise oxides such as MgO, CaO, and SrO, and the specification is not limiting to having more than one divalent metal oxide as the pre-selected formulation used to form the microspheres may have up to about 30 wt.% divalent metal oxide as disclosed in paragraph [0027].

Support for the percentage ranges for sodium oxide can be found at paragraphs [0027], [0055], [0061]-[0062]. Further, paragraph [0062] discloses a microsphere embodiment having a combination of sodium oxide and potassium oxide. The sodium oxide content of the microsphere may have with a lower range of 4 wt.% and an upper range of 10 wt.%, and that a second alkali metal oxide that may be less than 1.5 wt.%, which can include 0 wt.%, thereby providing a microsphere having only sodium oxide.

Support for the amendment of the aluminum oxide percentage range can be found at paragraphs [0027] and [0055], and the amount of aluminum oxide of 12.8 wt.% can be found in Example 8, paragraph [0153] and Table 13. Withdrawal of the rejection is respectfully requested.

Claims 1-6, 8, 10-13, and 19-23 stand rejected under 35 U.S.C. 112, second paragraph. Applicant has amended claim 1 to more clearly recite the invention. Withdrawal of the rejection is respectfully requested.

Additionally, Claim 24 has been amended to claim a sodium oxide concentration of 5.2 wt.% to less than about 10 wt.%, and support for the amendment is found at paragraphs [0061]-[0062] and in Example 8, paragraph [0153] and Table 13.

Claims Rejection - 35 U.S.C. § 102(b)

Claims 1-6, 8, 10-14, 19-24, and 27-33 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Goetz et al.* (U.S. Patent No. 4,983,550) The Examiner asserts that *Goetz et al.* discloses the elements of claims 1-6, 8, 10-14, 19-24, and 27-33. Applicant respectfully responds to the rejection.

Goetz et al. discloses a method of forming glass spheres for use in a wide range of polymeric compounds suitable for extrusion and injection molding. The method includes heating glass particles having a composition consisting of silicon oxide, divalent metal oxides, alkali metal oxides, among other oxides, and sulfur. [Col. 2, ll. 37-58, and Col. 3, ll. 22-68]. *Goetz et al.* further discloses that compounds having the formula R_2O_3 , other than B_2O_3 , can be present in the glass up to 10 weight percent.

Goetz et al. does not teach or suggest a synthetic microsphere comprising about 12.8 to 40 wt.% aluminum oxide.

Thus, *Goetz et al.*, does not teach, show or suggest a "a synthetic, substantially spherical wall comprising an aluminosilicate material, wherein the microsphere has a particle diameter of greater than about 30 microns, wherein the microsphere comprises 12.8 wt.% to 40 wt.% aluminum oxide, 5.2 wt.% to 30 wt.% calcium oxide, and about 4 to less than about 10

wt.% sodium oxide, wherein the microsphere has a total alkali metal oxide content of less than about 10 wt.%, based on the weight of the microsphere" as recited in claim 1, and claims dependent thereon. Withdrawal of the rejection is respectfully requested.

Goetz et al., does not teach, show or suggest a "plurality of synthetic microspheres comprising 12.8 wt.% to 40 wt.% aluminum oxide, 5.2 wt.% to less than about 10 wt.% sodium oxide, and an alkali metal oxide content of less than about 10 wt% based on the total weight of the microspheres, wherein the synthetic microspheres are formulated to have a pre-selected average particle diameter of greater than about 30 microns, wherein the synthetic microspheres are formulated with aluminosilicate particles having a pre-selected average particle size range of about 0.01 to 50 microns" as recited in claim 24, and claims dependent thereon. Withdrawal of the rejection is respectfully requested.

Goetz et al., does not teach, show or suggest a "formulation for forming a synthetic microsphere, comprising a primary component comprising at least one aluminosilicate component having a particle diameter pre-selected to form a microsphere with a particle diameter greater than about 30 microns, at least one chemical, wherein the at least one chemical comprises a binding agent that substantially binds the particles of the primary component together so as to form a precursor to make the synthetic microspheres, wherein the primary component and the at least one chemical each having a sufficiently low or no alkali metal oxide content so as to maintain the alkali metal oxide content of the synthetic

microsphere to less than about 10 wt.% and comprising 12.8 to 40 wt.% aluminum oxide and about 4 to less than about 10 wt.% sodium oxide based on the weight of the microsphere" as recited in claim 28, and claims dependent thereon. Withdrawal of the rejection is respectfully requested.

Claims 24 and 27-33 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Jones et al.* (U.S. Patent No. 4,937,210). The Examiner asserts that *Jones et al.* discloses the elements of claims 24 and 27-33. Applicant respectfully responds to the rejection.

Jones et al. discloses forming a porous cellular material comprising a plurality of cavities each defined by the wall of a discrete hollow particle (microsphere). [Col. 2, ll. 43-52]. The hollow particles are formed from aluminasilicate starting materials by spray drying an aqueous suspension of the aluminasilicate containing 20% to 60% by weight solid aluminasilicate material and 0% to 40% by dry weight of a viscosity agent. [Col. 3, ll. 33-38]. *Jones et al.* further discloses a series of suitable aluminasilicate materials including kyanite, sillimanite, and andalusite, among others, and that and that the aluminasilicate starting material should contain from 1.5% to 2.5% by weight of M_2O , where M is sodium and/or potassium. [Col. 3, ll. 7-32, and Col. 4, ll. 28-37]

Jones et al. also discloses that the hollow spheres formed from this process are then calcinated, treated with a concentrated alkali metal hydroxide to remove silica to define ceramic crystals defining interconnecting pores, and washing the hollow spheres to remove silicate and alkali metal ions. [Col. 2, line. 53, to Col. 3, line 4.].

Jones et al. does not teach or suggest a synthetic microsphere comprising about 4 to less than about 10 wt.% sodium oxide.

Thus, *Jones et al.*, does not teach, show or suggest a "plurality of synthetic microspheres comprising 12.8 wt.% to 40 wt.% aluminum oxide, 5.2 wt.% to less than about 10 wt.% sodium oxide, and an alkali metal oxide content of less than about 10 wt% based on the total weight of the microspheres, wherein the synthetic microspheres are formulated to have a pre-selected average particle diameter of greater than about 30 microns, wherein the synthetic microspheres are formulated with aluminosilicate particles having a pre-selected average particle size range of about 0.01 to 50 microns" as recited in claim 24, and claim 27 dependent thereon. Withdrawal of the rejection is respectfully requested.

Jones et al., does not teach, show or suggest a "formulation for forming a synthetic microsphere, comprising a primary component comprising at least one aluminosilicate component having a particle diameter pre-selected to form a microsphere with a particle diameter greater than about 30 microns, at least one chemical, wherein the at least one chemical comprises a binding agent that substantially binds the particles of the primary component together so as to form a precursor to make the synthetic microspheres, wherein the primary component and the at least one chemical each having a sufficiently low or no alkali metal oxide content so as to maintain the alkali metal oxide content of the synthetic microsphere to less than about 10 wt.% and comprising 12.8 to 40 wt.% aluminum oxide and about 4 to less than about 10 wt.%

sodium oxide based on the weight of the microsphere" as recited in claim 28, and claims dependent thereon. Withdrawal of the rejection is respectfully requested.

Claims 24 and 27 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Matthews et al.* (U.S. Patent No. 3,838,998) The Examiner asserts that *Matthews et al.* discloses the elements of claims 24 and 27. Applicant respectfully responds to the rejection.

Matthews et al. discloses preparing glass microspheres from a soda feldspar and sodium silicate precursor composition which optionally, may include an additive for gas evolution. [Col 5, line 59, to Col. 6, line 48] The feldspar may comprise up to 50% of the solids. [Col. 7, ll. 22-28] The feldspar composition includes between 71.5 wt.% and 73.5 wt.% silicon oxide, between 15.52 wt.% and 18.96 wt.% alumina, between 6.21 wt.% and 8.39 wt.% sodium oxide, and between 1.10 wt.% and 1.26 wt.% calcium oxide with minimal range variation of components. [Col. 6, ll. 2-49]. *Matthews* also discloses that the composition are modified to maintain the proportion by weight of 60-20-20, of silica, alumina, and soda oxides, respectively. [Col. 6, line. 40, to Col 7., line 20].

Matthews et al. is silent on the material composition of the microspheres and does not teach or suggest a microsphere comprising about 4 to less than about 10 wt.% sodium oxide.

Thus, *Matthews et al.*, does not teach, show or suggest a "plurality of synthetic microspheres comprising 12.8 wt.% to 40 wt.% aluminum oxide, 5.2 wt.% to less than about 10 wt.% sodium oxide, and an alkali metal oxide content of less than about 10 wt% based on the total weight of the microspheres, wherein the

synthetic microspheres are formulated to have a pre-selected average particle diameter of greater than about 30 microns, wherein the synthetic microspheres are formulated with aluminosilicate particles having a pre-selected average particle size range of about 0.01 to 50 microns" as recited in claim 24, and claim 27 dependent thereon. Withdrawal of the rejection is respectfully requested.

Claims 24 and 27 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Torobin* (U.S. Patent No. 4,303,732) The Examiner asserts that *Torobin* discloses the elements of claims 24 and 27. Applicant respectfully responds to the rejection.

Torobin discloses a process for forming hollow glass microspheres made from a low heat conductivity glass composition containing a high vacuum and having a thin metal coating deposited on the inner wall of the microspheres for use as an insulation material and solar energy collector. [Abstract] The thin transparent or reflective metal coating can be made by using blowing gas of dispersed metal particles or gases or organo metal compounds. The hollow glass spheres can also be made to contain a thin transparent or reflective metal coating deposited on the inner wall surface of the microspheres by adding a small dispersed metal particles and/or gases of organo metal compounds to the blowing gas. [Abstract, Col. 17, ll. 65, to Col 20, ll. 28.]

Torobin does not teach, show, or suggest a microsphere comprising 12.8 wt.% to 40 wt.% aluminum oxide and 5.2 wt.% to less than about 10 wt.% sodium oxide.

Thus, *Torobin*, does not teach, show or suggest a "plurality of synthetic microspheres comprising 12.8 wt.% to 40 wt.%

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AMENDMENT AND RESPONSE
APPLICATION NO. 10/648,184

aluminum oxide, 5.2 wt.% to less than about 10 wt.% sodium oxide, and an alkali metal oxide content of less than about 10 wt% based on the total weight of the microspheres, wherein the synthetic microspheres are formulated to have a pre-selected average particle diameter of greater than about 30 microns, wherein the synthetic microspheres are formulated with aluminosilicate particles having a pre-selected average particle size range of about 0.01 to 50 microns" as recited in claim 24, and claim 27 dependent thereon. Withdrawal of the rejection is respectfully requested.

CONCLUSION

Applicants respectfully submit that the Application is in condition for allowance, and pursuant to the filing of this Amendment, Applicants earnestly seek such allowance of Claims 1-6, 8, 10-13, 19-24, and 27-43.

To the extent that any further fees are required during the pendency of this Application, including petition fees, the Commissioner is hereby authorized to charge payment of any additional fees, including, without limitation, any fees under 37 C.F.R. § 1.16 or 37 C.F.R. § 1.17, to Deposit Account No. 07-0153 of Gardere Wynne Sewell LLP and reference Attorney Docket No. 129843-1099. In the event that any additional time is needed for this filing, or any additional time in excess of that requested in a petition for an extension of time, please consider this a petition for an extension of time for any needed extension of time pursuant to 37 C.F.R. § 1.136 or any other section or provision of Title 37. Applicants respectfully request that the Commissioner grant any such petition and authorize the Commissioner to charge the Deposit Account referenced above. Please credit any overpayments to this same Deposit Account.

Should the Examiner have questions, comments, or suggestions in furtherance of the prosecution of this Application, please contact Applicants' representative at 713.276.5728. Applicants, through their representative, stand ready to conduct a telephone interview with the Examiner to review this Application if the Examiner believes that such an interview would assist in the advancement of this Application.

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AMENDMENT AND RESPONSE
APPLICATION NO. 10/648,184

This is intended to be a complete response to the Office
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Respectfully submitted,



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